Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	)	
	)	
Ways to Further Section 257	)	MB Docket No. 04-228
Mandate and to Build on	)	
Earlier Studies	)	
	)	
To the Commission	)	

COMMENTS OF THE DONALD MCGANNON COMMUNICATION RESEARCH CENTER

The Donald McGannon Communication Research Center at Fordham University submits the attached study, "Audience Value and Minority Media: An Analysis of the Determinants of the Value of Radio Audiences," by McGannon Center Director, Dr. Philip M. Napoli. This study has been submitted in response to the Media Bureau's request for information on how to build on earlier studies conducted in connection with Section 257 of the Telecommunications Act of 1996 and for recent analyses relevant to the conclusions of the studies.[1] The study was published in the *Journal of Broadcasting & Electronic Media,* a double-blind, peer-reviewed academic journal, in 2002.[2] Preliminary results of this study were presented at the Federal Communications Commission's Media Ownership Roundtable in October of 2001.[3]

This research was inspired by the study conducted for the Commission in connection with the Section 257 mandate by the Civil Rights Forum on Communications Policy titled

[1] *Media Bureau Seeks Comment on Ways to Further Section 257 Mandate and to Build on Earlier Studies,* Public Notice, MB Docket No. 04-228, DA 04-1690 (MB June 15, 2004).
[2] Napoli, Philip M. (2002). *Audience Valuation and Minority Media: An Analysis of the Determinants of the Value of Radio Audiences.* Journal of Broadcasting & Electronic Media, 46(2), pp. 169-184.
[3] Napoli, Philip M. (2001, October 29). *Diversity and Localism: A Policy Analysis Perspective.*

"When Being No. 1 is not Enough: The Impact of Advertising Practices on Minority-Owned and Minority-Formatted Broadcast Stations."[4] The attached study contains a number of improvements in terms of methodology, data gathering, and statistical analyses to the Civil Rights Forum's study, but reaches similar conclusions in terms of the significant economic handicaps facing programmers seeking to serve minority audiences. This study finds that, when controlling for other possible explanatory factors, the extent of minority composition of a radio station's audience is negatively related to a station's ability to monetize its audience. These results suggest that stations that target minority audiences (which often are minority-owned stations) face economic challenges that stations that target majority audiences do not face. The attached study also contains suggestions for further research (most notably a recommendation to integrate audience income data into the research design utilized in the attached study) that it is hoped can guide the Media Bureau in further empirical inquiries in this area.

Respectfully Submitted,

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Presentation delivered at the Federal Communications Commission's Media Ownership Roundtable. Available: http://www.fcc.gov/ownership/roundtable_docs/napoli-stmt.pdf.

[4] Ofori, K.A. (1999). *When Being No. 1 is not Enough: The Impact of Advertising Practices on Minority-Owned & Minority-Formatted Broadcast Stations.* Available: http://www.fcc.gov/Bureaus/Mass_Media/Informal/ad-study/.

Audience Valuation and Minority Media:

An Analysis of the Determinants of the Value of Radio Audiences

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Audience Valuation and Minority Media:

An Analysis of the Determinants of the Value of Radio Audiences

Abstract

This paper examines the factors that affect the value of radio station audiences, with an emphasis on whether, and to what extent, minority composition affects the value of radio audiences. Previous research has suggested that minority-owned and minority-targeted radio stations face significant economic barriers in the form of lower advertiser valuations of minority audiences. If this is the case, then the principles of source and content diversity that long have been central to communications policymaking are being undermined by the economics of the audience marketplace. This study finds evidence that the prominence of minorities (both African-American and Hispanic) does drive down the value of radio station audiences. These results suggest that policymakers seeking to promote source and content diversity may need to look beyond seeking means of promoting the establishment of new minority media outlets and also consider means of preserving the viability of existing media outlets.

Audience Valuation and Minority Media:
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All advertiser-supported media organizations operate in what is best described as a dual product marketplace (see Napoli, 2001b; Owen & Wildman, 1992; Shaver, 1995). That is, media organizations produce one product – media content – that is either given away or sold in an effort to attract the second product – audiences. The attention of these audiences is then sold to advertisers seeking consumer exposure to commercial messages. The audience and content markets are tightly inter-related. Success or failure in the "content market" is dependent upon success or failure in the "audience market" and vice versa (Napoli, 2003). For this reason, policymaking involving the preservation and enhancement of competition and diversity of sources and content within the media industries (see Napoli, 2001a) has been – and continues to be – guided by research on how various market and institutional factors affect what media organizations are able to charge for their audiences (e.g., Besen, 1976; Fisher, McGowan, & Evans, 1980; Peterman, 1971).

One recent manifestation of this general concern with source and content diversity involves the viability of minority-owned media outlets. Per the directive of Congress (Telecommunications Act of 1996, Section 257), the Federal Communications Commission (1996) initiated an investigation into the barriers affecting minority-owned media outlets and the associated availability of minority-targeted programming (see Bachen, et al., 1999; Ivy Planning Group LLC, 2000; KPMG LLP, 2000a, 2000b; Ofori, 1999). One of the barriers that may face minority-owned and -targeted media outlets is the possibility that minority audiences are valued at a much lower level by advertisers than majority audiences (Baker, 1994, 2002). If this is the case, then minority-targeted media outlets face a substantial hurdle to remaining viable, as their ability to monetize their audience is compromised by lower advertiser valuations of their target audience. Lower audience values lead to lower revenues, lower levels of investment in programming, and an overall diminished ability for such outlets to compete and remain

viable. In this way, the nature of the content market (in terms of the diversity of available sources and content offerings) is affected by the dynamics of the audience market. This study investigates the possibility of lower valuations of minority audiences through a quantitative analysis of the determinants of the value of commercial radio station audiences.

Minority Media and Diversity Policy

The general policy imperative that drives concerns about the viability of minority-targeted media outlets stems from policymakers' long-standing commitment to diversity in the sources of information and the content that these sources provide (Napoli, 1999a). The diversity principle extends, in part, from the traditional democratic theory notion of a well-functioning "marketplace of ideas," in which citizens' abilities to participate effectively in the democratic process are contingent upon their abilities to consider a wide array of ideas and viewpoints from a wide array of sources (Napoli, 1999b; Sunstein, 1993). Diversity concerns have economic motivations as well, as policymakers have sought to maximize the choices available to media consumers, thereby increasing their overall satisfaction (Entman & Wildman, 1992; Napoli, 1999b).

The availability of content targeting minority interests long has been perceived as an important means of providing such content diversity. As the FCC (1948) noted as far back as 1948, "It has long been an established policy of . . . the Commission that the American system of broadcasting must serve significant minorities among our population" (p. 15). Research has demonstrated that minority audiences focus much of their media consumption on minority-targeted programming and outlets – and even increase their media consumption – when such services are available (Rogers & Woodbury, 1996; Waldfogel, 2000), suggesting that such content is highly valued by its target audience. It is important to emphasize that such diversity is seen as benefitting not only those who are targeted by minority-appeal content, but those whose tastes are "majoritarian" as well. For the "marketplace of ideas" to enhance citizen knowledge and the consideration of diverse viewpoints, citizens must be exposed to diverse points

of view (Napoli, 1999a). It has been argued that this exposure diversity is particularly vital within the context of minority media, so that greater cultural understanding and social cohesion can be achieved (Rogovin, 1992).

In an effort to identify the potential barriers facing minority-targeted media content, the FCC commissioned a study of the value of minority audiences to advertisers (Ofori, 1999). The results of this study raised the possibility that advertisers may place significantly lower values on minority audiences and that these lower valuations may arise, in part, from advertiser misconceptions about minority spending patterns and product purchasing decisions (Ofori, 1999). A recent NTIA survey raised similar concerns about the challenges associated with selling minority audiences to advertisers (National Telecommunications and Information Administration, 2000). The NTIA survey found that minority broadcast station owners cited obtaining advertising as their most common difficulty (National Telecommunications and Information Administration, 2000, p. 53).

Lower advertiser valuations of minority audiences have significant implications for the viability of minority-targeted media outlets, as the provision of minority-targeted content potentially involves financial challenges not faced if more mainstream content options are pursued. In such a situation, the diversity of content long valued by policymakers can be undermined by the valuations placed upon different segments of the media audience by advertisers.

Audience Valuation

That minority audiences may be valued at a lower level than majority audiences may be a reflection of the basic economics of the audience marketplace. Advertisers typically value various audience segments differently, based upon their demographic characteristics. These demographic characteristics are presumed to correlate with purchasing power and purchasing behavior.[i] Thus, for instance, younger audience members (i.e., 18-49) generally are valued more highly than older audience members (i.e., 50+), due to factors such as their presumed greater inclination to switch brands, their

higher levels of disposable income, and their lower levels of availability in the media audience (see Koschat & Putsis, 2000). Income is another important factor that guides advertiser valuations of media audiences (Koschat & Putsis, 2000). Some products and services are likely only to be purchased by consumers of certain income levels. For this reason, advertisers frequently will use income as a variable by which to screen out certain media outlets.

There are a number of possible reasons why ethnicity may factor into audience valuations as well. To a certain degree, ethnicity correlates with income. The median family income for Whites is almost 46 thousand dollars, compared with approximately 30 thousand for African- Americans and 33 thousand for Hispanics (U.S. Census Bureau, 2001). Thus, advertisers seeking higher-income consumers may avoid minority-targeted media outlets. It is also the case that African-Americans and Hispanics consume significantly more television and radio on a weekly basis than Whites (Nielsen Media Research, 2000; Radio Advertising Bureau, 2001). The associated greater ease with which they can be reached by advertising messages may reduce their value to advertisers. Finally, some within the minority media community argue that advertisers form their valuations of minority audiences on the basis of severe misconceptions about minority product preferences and purchasing habits, which leads to a devaluing of minority audiences (Ofori, 1999).

Regardless of the reason, there is a growing body of evidence that such "minority discounts" do exist. Ofori's (1999) analysis of commercial radio stations found that stations with formats that targeted minority audiences earned less for their audiences than stations with general interest formats. However, because this analysis focused only on formats, and not on audience composition, no strong conclusions regarding the relationship between audience composition and audience valuation could be drawn.[ii] An earlier analysis by Webster and Phalen (1997) found that greater proportions of non-whites in a market had a significant negative relationship with the average cost of reaching 1,000 television viewers within a market. This analysis controlled for income variations across markets, suggesting that ethnicity was not

simply a proxy for income. The Webster and Phalen (1997) study focused on advertiser expenditures at the market level, leaving open the question of the existence of such effects at the outlet level. No research has, at this point, directly examined the relationship between actual demographic composition of media outlets' audiences and advertiser valuations of these audiences to see if there is a significant relationship between audience ethnicity and audience value. The study presented here attempts to fill this gap through an analysis of a sample of commercial radio stations.

It is important to emphasize that lower valuations of minority audiences may make economic sense from an advertiser's perspective (see above). Regardless, such lower valuations may undermine the viability of minority targeted media content. Such impediments to the economic viability of minority-targeted media could undermine the principles of source and content diversity that long have been objectives of electronic media regulation in the United States.

Methodology

Given the nature of the policy issue, this analysis utilizes a dependent variable – the power ratio – that provides an indication of the extent to which an individual station is capable of monetizing its audience. Power ratios are computed by dividing a radio station's share of the total radio advertising expenditures in its market by its share of the total radio listening audience in that market. Thus, a power ratio greater than one suggests that a station is able to capture a share of advertising dollars that exceeds its share of the total audience. Such a station is "overselling" its audience. A station with a power ratio of less than one is capturing a share of advertising dollars that is lower than its share of the listening audience. Such a station is "underselling" its audience. Because the power ratio controls for audience share, it provides a measure that is uniquely well-suited to assessing the impact of audience composition on audience value.

Power ratio data were obtained from the 1999 Media Access Pro commercial database produced by BIA Research.[iii] For the regression analysis, the natural log of the power ratio was used as the

dependent variable. This transformation was conducted in accordance with the conclusions of Bates' (1991) research into the various methods and models employed in the analysis of the value of broadcast audiences, which found models employing such a transformation to be both theoretically appropriate and to provide a better fit to the data than models without such a transformation (see also Bates, 1983).[iv]

An emphasis on audience composition has been maintained for the independent variables as well. Station power ratios for 1999 are regressed against Fall, 1999 Arbitron data on the demographic composition of individual stations' audiences. Thus, instead of incorporating each station's ratings or share points, or raw number of listeners for the different demographic groups listening to each station, this analysis employs percent composition data (for similar approaches, see Koschat & Putsis, 2000; Waterman & Yan, 1999). Arbitron provides data on the percentage of each station's audience that is comprised of various demographic groups (according to age, gender, and ethnicity). Thus, for example, Station A's audience may be 40 percent African-American, while Station B's audience may be 80 percent African-American. Clearly, such figures provide no indication of which station has the larger number of African-American listeners. Station A may reach more African-Americans than Station B, if Station A's total audience is much larger.

The use of pure composition figures was deemed most appropriate given the nature of the dependent variable (see Koschat & Putsis, 2000). Using raw numbers or rating/share points would not as effectively address the issue of the viability of minority-targeted media outlets, given that minority-targeted media outlets are not defined in terms of audience size, but in terms of the extent to which the composition of the outlets' audiences consist of minorities.

Arbitron breaks down each station's audience into men and women for seven age categories.[v] Arbitron provides data on the average quarter hour percentage of each station's 6:00 AM to midnight audience that is comprised of each of these demographic categories. For the purposes of this analysis, these demographic categories were collapsed to produce two independent variables: (a) the percentage of

a station's audience comprised of men within the ages of 18 to 54 (MEN1854); and (b) the percentage of a station's audience comprised of women within the ages of 18 to 54 (WOM1854). These two demographic categories roughly represent the audience groups with the highest demonstrated value to advertisers (see Hamilton, 1998; Webster & Phalen, 1997). Thus, it is presumed that there will be a positive relationship between MEN1854 and WOM1854 and station power ratios.

Broadcast band was included as a dummy variable (AMFM; 0 = AM; 1 = FM) to account for the likelihood that FM stations are able to charge more for their audiences than AM stations, due to the better sound quality of FM signals (National Telecommunications and Information Administration, 2000, pp. 38-39). The station's average quarter hour share (6:00 AM to midnight) of the listening audience (SHARE) also was included as an independent variable to account for the possibility of advertisers paying a premium for larger audiences, independent of the composition of those audiences.[vi] Although this analysis focuses on the issue of audience composition, research has suggested that advertisers will pay more on a per audience member basis for larger audiences (Fisher, et al., 1980; Waterman & Yan, 1999). Such patterns may be due to the efficiencies derived from engaging in fewer transactions in order to reach the desired number of consumers. Or, this premium may be derived from the value advertisers associate with the likely greater reach of a single ad placement relative to two ad placements that achieve the same level of audience exposure (Fisher, et al., 1980, p. 700). In the latter case, there is the possibility that some consumers appeared in both audiences (unless the advertisements are run simultaneously on different channels), thus the overall reach in the latter case is lower.

To capture the ethnic composition of each station's audience, the two composition-based ethnicity variables provided by Arbitron were employed. The first of these is the percentage of a station's average quarter hour audience that is African-American (AQBLACK). The second is the percentage of a station's average quarter hour audience that is Hispanic (AQHISP). It is important to note that Arbitron does not report ethnic composition for stations in all of the markets that it measures, only in those markets

where there is a significant minority population (see below); nor does the company provide data on other ethnic groups in any of its markets.

A number of market-level variables were included as control variables, to account for the possibility that station power ratios vary in accordance with market size and demographic fluctuations. Two ethnicity variables (percent Hispanic in the station's market [HISPANIC]; percent African-American in the station's market [BLACK]) were included, as was per capita income in the station's market (PERCAP). Market size was controlled using total radio advertising revenues in the market (MARKETREV). This variable was very highly correlated with other potential measures of market size, such as total population and number of radio stations in the market. The use of a market size variable that most directly reflected market value was deemed most appropriate, given the nature of the issues being addressed.

The inclusion of these market-level independent variables addresses the possibility that variations in market size and demographics affect audience share and revenue share (the two components of the power ratio) disproportionately, independent of a station's audience composition. Perhaps a more likely relationship involves possible interaction effects between audience ethnicity and market conditions. Thus, for instance, the extent to which African-American/Hispanic audience composition affects audience value may be different in markets with higher African-American/Hispanic compositions than in markets with lower African-American/Hispanic compositions, given the different supply and demand dynamics for African-American/Hispanic audiences in markets that are heavily African-American/Hispanic versus those that are not. Similarly, in larger or wealthier markets, advertiser demand for African-American/Hispanic audiences may be different than in smaller or less wealthy markets. For these reasons, six interaction terms were created. Two interaction terms were created for interactions between audience ethnic composition and market ethnic composition (AQHISP*HISPANIC; AQBLACK*BLACK), to address the possibility that the effect of audience ethnicity on audience value

varies in accordance with market ethnic composition. Two interaction terms also were created for interactions between audience ethnic composition and market size (AQHISP*MARKREV; AQBLACK*MARKREV), to account for the possibility that the effect of audience ethnic composition on audience value varies in accordance with market size. Finally, two interaction terms were created for interactions between audience ethnic composition and market per capita income (AQHISP*PERCAP; AQBLACK*PERCAP), to account for the possibility that the effect of audience ethnic composition on audience value varies in accordance with per capita income in a station's market.

Utilizing interaction terms typically raises problems of multicollinearity between the main effect independent variables and their associated interaction terms (Jaccard, Turrisi, & Wan, 1990). The recommended procedure for reducing such multicollinearity problems is to "center" each main effect independent variable used in the computation of the interaction terms (Cronbach, 1987; Jaccard, et al., 1990). Centering involves subtracting the independent variable mean from the independent variable value for each case (see Cronbach, 1987). These centered independent variables were then used as the main effect variables in the multivariate analysis and to compute the interaction terms used in the multivariate analysis (see Cronbach, 1987).[vii] All variables used in the study are summarized in Table One.

Insert Table One Here

Although it would have been desirable to also incorporate data on the average income levels of the audience members for each station studied, such data were not available via the data sources obtained for this analysis (such data are available, though at significant expense). As was noted above, station-level audience income data are not part Arbitron's syndicated reports (the reports obtained for this study) and only are available to Arbitron clients for an additional fee. This limited availability of audience

income data even to advertisers likely limits the extent to which such data are employed in media buying decisions. Regardless, such data would have made it possible to separate the effects of income from the effects of ethnicity. Given, as was noted above, that ethnicity is correlated with income, it is possible that advertisers are using ethnicity solely as a proxy for income. Although previous research has provided evidence that contradicts this assumption (Ofori, 1999; Webster & Phalen, 1997), the analysis presented here can not address this issue directly. However, as was noted above, even if lower valuations of minority audiences largely are a function of lower income levels, such lower valuations still could undermine the source and content diversity that policymakers traditionally have sought, as well as the provision of content serving minority interests and concerns.

Finally, it is important to address a number of limitations in the scope of the database. First, Arbitron does not measure all radio stations in the United States. Of the roughly 13 thousand radio stations in the United States, only about six thousand are in Arbitron-defined and measured radio markets (National Telecommunications and Information Administration, 2000, p. 40). Moreover, as was noted above, Arbitron does not provide data on the ethnic composition of station audiences for all of the radio markets it measures. Generally, Arbitron only provides such data in markets where there is a significant minority population. These factors limit the number of stations eligible for analysis and weight the stations included in this analysis toward those in markets with large African-American and Hispanic populations.[viii] The number of eligible stations was limited further by the fact that not all commercial radio stations report their revenues to BIA Research (BIA's reported response rate is roughly 80 percent). In cases where station revenues are not reported, it is impossible to compute the power ratio that serves as the dependent variable for this analysis. Due to these limitations, within this data set there is a total of 810 stations with Hispanic audience composition (and revenue) data and 1430 with African-American composition (and revenue) data, and a total of 461 commercial radio stations with reported revenues and with both African American and Hispanic audience composition data available. It is this latter set of

stations that is the focus of this analysis, as these stations represent the only context in which it is possible to investigate simultaneously the effects of both of the minority audience characteristics at issue on audience value.

In sum, while previous research has explored the relationship between audience ethnicity and audience value via market-level demographic data and market-level CPMs (Webster & Phalen, 1997) and via differences in power ratios across program formats (Ofori, 1999), the approach outlined here moves beyond both of these approaches by directly examining the relationship between the audience composition of individual media outlets and their ability to successfully compete for available advertising dollars.

Results

The mean power ratios of stations that target minority audiences were first compared to the power ratios of stations that do not target minority audiences. For the purposes of this analysis, minority-targeted stations were defined as those stations for which the majority of the station's average quarter hour audience (i.e., greater than 50 percent) is comprised of African-American and/or Hispanic listeners. In this means comparison, stations with a minority audience of greater than 50 percent ($n = 121$) have an average power ratio of .82, compared with an average power ratio of 1.06 for other stations ($n = 340$). This difference is statistically significant at the .01 level ($F = 27.41$; $p < .01$; $N = 461$). As these results suggest, minority-targeted stations tend to undersell their audiences, meaning that their share of the total radio audience is greater than their share of the total radio advertising revenues in their markets.

Table Two presents a correlation matrix for all of the independent and dependent variables used in this study. Of particular importance is the fact that correlations between the main effect variables and their associated interaction terms generally are modest. Before these variables were centered, some of the correlations between main effect and interaction terms were as high as .90, a level indicative of a potentially serious multicollinearity problem. There remain, however, a few strong correlations between

some of the interaction terms. The correlation between AQBLACK*BLACK and AQBLACK*PERCAP is .64 ($\underline{p} < .01$). There is a similarly strong correlation ($r = .70$; $\underline{p} < .01$) between the Hispanic versions of these interaction terms (AQHISP*HISP and AQHISP*PERCAP). However, tolerance statistics for all four of these independent variables are reasonably high (ranging from .39 to .52), alleviating concerns about multicollinearity in the multivariate analysis.

Insert Table Two Here

Table Three presents the results of a hierarchical regression analysis for all stations for which both Hispanic and African-American composition data were available.[ix] Hierarchical regression was employed due to the inclusion of interaction terms. When working with interaction terms, hierarchical regression is necessary in order to determine whether the interaction terms provide significant explanatory power beyond that provided by the main effect variables (see Jaccard, et al., 1990).[x] Using hierarchical regression in this context also makes it possible to better examine the relative contribution of market-level versus station-level independent variables (given the nature of the dependent variable, it was presumed that station-level independent variables would provide greater explanatory power than market-level independent variables).

The first set of independent variables entered into the model was the market-level control variables. As the table indicates, these variables alone explain none of the variance in station power ratios. When station-level independent variables are added (block 2), the adjusted R^2 increases from .00 to .32 ($\underline{p} < .01$). As the table indicates, all six station-level independent variables are significant in the expected direction. There is a negative relationship between modulation type and power ratios, with AM status having a negative effect on power ratios (beta = -.26, $\underline{p} < .01$). Both the MEN1854 and WOM1854 demographic composition variables are positively related to power ratios (MEN1854: beta = .49; $\underline{p} < .01$;

WOM1854: beta = .44; $\underline{p} < .01$), indicating that the greater the extent to which a station's audience is composed of men and women 18 to 54, the greater the station's power ratio. A station's overall audience share (SHARE) also is positively related to a station's power ratio (beta = .19; $\underline{p} < .01$), providing evidence that sellers of audiences are able to charge a premium on a per audience member basis for larger audiences. Finally, in terms of ethnicity, both the AQHISP (beta = -.20; $\underline{p} < .01$) and AQBLACK (beta = -.27; $\underline{p} < .01$) variables are negatively related to power ratios, suggesting that ethnic composition exerts a downward pressure on a radio station's ability to monetize its audience. The magnitude of the beta coefficients indicates that the age/gender independent variables are the most important in terms of explanatory power, followed by the ethnicity variables. The AQBLACK and AQHISP coefficients are similar in size, though African-American audience composition seems to exert a slightly stronger downward pressure on audience value than Hispanic audience composition (beta of -.27 versus .20).

In block three, the six interaction terms were added to the equation. As Table Three indicates, the addition of interaction terms explains only an additional five percent of the variance in the dependent variable (the adjusted R^2 increases from .32 to .37); however, this improvement in explanatory power is significant at the .01 level. Only one of the six interaction terms is statistically significant. The significant negative coefficient for the AQHISP*MARKREV interaction term (beta = -.20; $\underline{p} < .01$) indicates that the magnitude of the negative relationship between Hispanic audience composition and station power ratios decreases slightly as market size increases.

Insert Table Three Here

Conclusion

The analyses presented here represent the next step forward in determining the extent to which advertiser valuations of minority audiences affect the viability of minority-owned and minority-targeted

media outlets. The results conform with those of previous studies (Baker, 1994; Ofori, 1999; Webster & Phalen, 1997), which found that minority audiences are more difficult to monetize than non-minority audiences. This study also has extended previous research by examining the value of minority audiences at the level of individual media outlets and by employing detailed data on the demographic composition of the audiences for those outlets. Future research should seek to better separate possible income effects from ethnicity effects via the gathering of audience income data (available via Arbitron, but at an expense that exceeded the budget for this study). However, from a media policy standpoint, whether lower valuations of minority audiences are purely a function of income, or also are a function of other factors, such as advertiser perceptions of minority spending and product usage patterns, the implications for diversity in the electronic media are the same – the viability of minority-targeted media content suffers.

It is important that these findings be placed within the broader context of the economics of minority media. Minority-targeted media content suffers not only from the potentially lower valuations of minority audiences, but also from the fact that, by definition, it appeals to a small audience. Smaller audiences mean smaller revenues, particularly when the audience is not highly valued by advertisers (if the small audience segment being targeted is highly valued by advertisers, then, of course, revenue potential increases). Recall that this analysis also found that stations with larger audiences are able to charge more on a per-audience-member basis than stations with smaller audiences, a finding that further illustrates the compounding negative consequences of being a niche programmer. These economic handicaps result in lower incentives to produce such programming and, consequently, lower levels of availability of such programming (see Owen & Wildman, 1992; Waldfogel, 2000).

Morever, lower levels of audience size and value both exert downward pressures on the production budgets of minority content, which further undermine the ability of such content to compete and remain viable. The smaller and less valuable is the potential audience for a media product, the smaller the likely investment in programming (Owen & Wildman, 1992). At the same time, research

shows that audiences are drawn to content with higher production budgets over content with smaller production budgets (Hamilton, 1998; Owen & Wildman, 1992). Together, these processes create a situation in which minority content loses some of its appeal – even to minority audiences – relative to majority content. The differential in production budgets may be enough for some minority audience members to find the majority content more appealing than the content targeted at their particular interests and concerns (see Wildman, 1994). Such defections further undermine the viability of minority-targeted content and contribute to the availability of minority audiences in non-minority content that further discourages advertisers from advertising on minority-targeted media outlets. In the end, the lower valuations that advertisers place on minority audiences feed into an economic process that works against minority-targeted content being able to compete and remain viable in both the audience and content markets. The end result is lower levels of availability of minority-targeted content (Wildman & Karamanis, 1996).

This perspective suggests that policymakers seeking – at the general level – to preserve and promote diversity of sources and content in the electronic media, and – at the specific level – to promote minority ownership of media outlets and the production of minority-targeted content, need to investigate new strategies and tactics. Previous policy initiatives, such as minority preferences in the license allocation process, and minority tax certificates, have focused on increasing the likelihood of minorities becoming owners of media outlets. The results presented here suggest that if policymakers want to preserve and promote minority-targeted media outlets, their efforts may need to address not only the barriers to establishing such media outlets, but also the barriers to maintaining the financial viability of such outlets once they are established. Possible mechanisms might include subsidies for minority-targeted media outlets, or education campaigns designed to counter any advertiser misconceptions about minority media audiences that may be driving down their value.

Of course, such recommendations are premised upon the notion that existing levels of minority-

targeted media content are not sufficient. Whether – and to what extent – this is the case is a question that is beyond the scope of this analysis. The analyses presented here suggest that the economic handicaps associated with targeting minority audiences may lead to a disconnect between the availability of minority audiences and the availability of minority-targeted media content. Future research should explore this issue in greater detail. However, in order to effectively address this issue, and the necessity of a policy response, policymakers need to work toward establishing more concrete objectives in terms of the desired levels of both ownership and content diversity in the electronic media marketplace.

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Table One

Variable Labels and Descriptions

Variable	Description
Market-Level	
MARKREV	Total radio advertising revenues in market.
PERCAP	Per capita income in market.
BLACK	Percentage of market population that is African-American.
HISP	Percentage of market population that is Hispanic.
Station-Level	
AMFM	Does a station broadcast on an AM or FM modulation? (0 = AM; 1 = FM).
MEN1854	Percentage of a station's average quarter hour audience composed of men, ages 18 to 54.
WOM1854	Percentage of a station's average quarter hour audience composed of women, ages 18 to 54.
SHARE	Station's average quarter hour audience share in its market.
AQBLACK	Percentage of a station's average quarter hour audience composed of African-Americans.
AQHISP	Percentage of a station's average quarter hour audience composed of Hispanics.
Interaction Terms	
AQBLACK*BLACK; AQBLACK*MARKREV; AQBLACK*PERCAP; AQHISP*HISPANIC; AQHISP*MARKREV; AQHISP*PERCAP.	
Dependent Variable	
LOGPR	Log of a station's power ratio (advertising revenue share/audience share).

Table Two

Correlation Matrix

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. LOGPR	1.00																
2. MARKREV	.04	1.00															
3. PERCAP	-.001	.13**	1.00														
4. BLACK	.03	.38**	.46**	1.00													
5. HISP	.03	.15**	-.64**	-.21**	1.00												
6. AMFM	.18**	.01	-.06	-.03	.02	1.00											
7. MEN1854	.42**	.04	-.04	-.01	-.01	.25**	1.00										
8. WOM1854	.19**	.003	-.01	-.05	.04	.60**	-.07	1.00									
9. SHARE	.15**	-.13**	.01	-.03	-.07	.30**	-.06	.10*	1.00								
10. AQBLACK	-.18**	.11*	.16**	.30**	-.09*	-.05	-.15**	.20**	-.02	1.00							
11. AQHISP	-.06	.05	-.31**	-.11*	.46**	.04	.03	.14**	-.16	-.20**	1.00						
12. AQBLACK*BLACK	-.10*	.03	.13**	.20**	-.11*	-.07	-.08	.05	.01	.55**	-.12*	1.00					
13. AQBLACK*MARKREV	-.03	-.02	.01	.04	-.03	.05	-.04	.04	.06	.21**	-.08	.35**	1.00				
14. AQBLACK*PERCAP	-.02	.01	.04	.16**	-.01	-.10*	-.02	-.02	-.05	.33**	.02	.64**	.14**	1.00			
15. AQHISP*HISP	-.04	-.03	-.25**	-.08	.36**	.02	-.02	-.01	.06	-.13**	.48**	.03	-.02	.18**	1.00		
16. AQHISP*MARKREV	-.17**	.20**	.03	-.02	-.03	.07	.04	.02	.08	-.06	.06	-.07	-.25**	-.04	.05	1.00	
17. AQHISP*PERCAP	-.03	.03	.15**	.01	-.26**	-.01	.003	.04	.01	.02	-.31**	-.09	-.002	-.26**	-.70**	.15**	1.00

Table Three

Hierarchical Regression for Natural Log of Station Power Ratio for Stations in Hispanic and African-American Measured Markets (N = 461).

	B	S.E.	β
Block 1: Market-Level			
MARKREV	.00	.00	.02
PERCAP	.00	.00	.01
BLACK	.002	.01	.03
HISP	.002	.003	.04
Adjusted R^2 = .00			
Block 2: Station-Level			
AMFM	-.29**	.06	-.26
MEN1854	.01**	.001	.49
WOM1854	.01**	.002	.44
SHARE	.05**	.01	.19
AQBLACK	-.01**	.001	-.27
AQHISP	-.003**	.001	-.20
Adjusted R^2 = .32**			
Block 3: Interaction Terms			
AQBLACK*BLACK	-.0002	.00	-.05
AQBLACK*MARKREV	.00	.00	-.03
AQBLACK*PERCAP	.00	.00	.09
AQHISP*HISP	-.0001	.00	-.09
AQHISP*MARKREV	-.00000001**	.00	-.20
AQHISP*PERCAP	-.000001	.00	-.09
Adjusted R^2 = .37**			
R^2 Change = .05**			

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* $p < .05$; ** $p < .01$.

Endnotes

i. It should be noted that recent studies have raised serious doubts as to whether demographic variables effectively predict product purchasing behaviors (D'Amico, 1999; Schroeder, 1998).

ii. Minority-format stations were defined as those stations whose formats were categorized as either ethnic, black, Spanish, or urban (Ofori, 1999, p. 9).

iii. The audience share data used by BIA Research to calculate the power ratio are collected directly from Arbitron. The revenue share data are obtained via BIA's own primary research on station revenues. BIA's data are used by both radio industry investors and the Federal Communications Commission in their analyses and decision making.

iv. Bates' (1991) assertions were supported in this analysis, which found a slightly better fit with the transformed dependent variable.

v. These age categories are: (a) teens; (b) 18-24; (c) 25-24; (d) 35-44; (e) 45-54; (f) 55-64; and (g) 65+.

vi. Share data were employed as opposed to ratings data because shares provide a more direct indication of how a station is performing relative to other stations in its market. In contrast, a rating of 15 could represent a very different level of relative performance across markets of different sizes and different numbers of stations.

vii. The multivariate analysis also was conducted using the non-centered independent variables, with no significant difference in explanatory power or substantial differences in the independent variable-dependent variable relationships. However, tolerance statistics were very low for a number of the interaction terms, indicating a multicollinearity problem when non-centered independent variables were employed.

viii. It is important to recognize that stations in markets for which minority composition is not measured could still potentially have a large proportion of minority listeners in their audience.

ix. Residuals were normally distributed with constant variance. In addition, tolerance statistics indicated no significant multicollinearity among the independent variables.

x. As noted by Jaccard, et al. (1990), "The significance test for an interaction effect takes the form of a hierarchical multiple regression analysis" (p. 35).